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ABSTRACT

A study of the relationship of language proficiency level and bilingualism or monolingualism to the comprehension of anaphoric third-person subject pronouns in 9- and 10-year-old children found that bilingual children have the same difficulty with anaphora as their monolingual counterparts. In the comprehension of the pronouns tested, partial language proficiency was not a hindrance, with bilingual children having a slight advantage over their matched partial monolingual counterparts. A likely interpretation is that the high reading level possessed by both monolingual and bilingual children was one important factor in comprehension test results. Developmental factors were also found to be important here, as in previous research, and it appears that anaphora comprehension is not accelerated in bilingual children because it requires developmental readiness. (MSE)

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# LANGUAGE PROFICIENCY LEVEL AND THE COMPREHENSION OF ANAPHORIC SUBJECT PRONOUNS BY BILINGUAL AND MONOLINGUAL CHILDREN*

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Research on second language acquisition in the last two decades has concentrated on the unique and predictable aspects of acquiring a second language. Teachers, however, are often left to themselves to incorporate research into practice and practical classroom realities. While we now understand creative construction (Burt and Dulay 1978), natural approaches (Krashen 1982), discourse and sentence syntax (Hatch 1983), and the role of language in schooling (Cummins 1982), little attention has been given to classroom application. Specifically, there is little or no research on how the comprehension of certain syntactic structures that appear with great frequency in the texts that bilingual (and monolingual) children are expected to read are affected by language proficiency level attained in either first or second language. One such structure is the anaphoric third person subject pronouns, e.g., he, she, it, they.

Comprehension of anaphoric reference by monolingual English-speaking children is an area of active linguistic research. C. Chomsky (1969) initiated studies of children's ability to comprehend pronominalization in oral language, and Barnitz (1980) and Richeck (1977) explored children's ability to comprehend pronominalization in written text. These studies elucidated some of the difficulties English-speaking monolingual children encounter with different types of forward and backward pronominalization, but little or no research has been carried out

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on the relationship of bilinguals proficiency level and the comprehension of these pronominal structures.

Language development in bilingual children has become the focus of study in education as well as linguistics. Prior to the 1960's, bilingualism was considered by many researchers to lead to mental confusion, mental fatigue, impaired intellectual development and school retardation, and ultimately to limited creative ability in entire ethnic groups (Manuel and Wright 1929, Mitchell 1937, Smith 1939, Weisgerber 1935).

According to Darcy (1953) many investigators overlooked the effects of schooling, social class, and economic background in selecting samples for their studies. Of even greater importance was the frequent omission of bilingual proficiency as an important research variable. In 1962 when Peal and Lambert controlled for these variables, they found that bilinguals demonstrated greater skill in dealing with abstract concepts and relations than did their monolingual counterparts. The research in bilingualism over the last decade demonstrated a positive relationship between bilingualism and cognitive development. Specifically, the research by Cummins (1980a,b,1982) illustrated that the degree of bilingual proficiency is a critical factor that affects other variables such as academic achievement. Other researchers (Ben-Zeev 1977, Cummins and Gulutsan 1974, Cummins and Mulcahy 1978) also discovered that bilinguals tested significantly higher in measures of reasoning and cognitive functioning than their monolingual counterparts.

In his study of the cognitive and linguistic functioning of bilinguals, Cummins (1980b) distinguished between two kinds of linguistic abilities: 1. *basic interpersonal communicative skills (BICS)*, 2. *cognitive/academic linguistic proficiency (CALP)*. BICS are acquired by everyone in the first language regardless of IQ or academic aptitude. Cummins equates BICS with what N. Chomsky (1965) has pointed out are phonological, syntactical, and lexical skills necessary for everyday interpersonal contexts and are universal across native speakers. Though there are individual differences in the way speakers manifest these skills, for the most part they are not strongly related to cognitive or academic performance.

The other dimension of linguistic proficiency which has been labeled cognitive/academic is the language required for literacy in a context-free setting which includes reading comprehension and negotiation of meaning. Though BICS tend to reach a plateau at about age five or six, CALP continues to develop throughout the school years and beyond. The major difference between the two language proficiencies is that individual differences in CALP are strongly related to academic progress, whereas BICS are largely unrelated. In an L2 context, L2 CALP becomes similarly differentiated. These two language proficiency constructs were similarly corroborated in the research of Burt and Dulay (1978), Krashen (1978), and Skutnabb-Kangas and Toukumaa (1976).

In the area of pronominalization research, D'Amico (1978) and Richeck (1977) have demonstrated that anaphora is one of the most frequently found structures in school texts. Third person subject pronouns are the most common, appearing as early as in pre-primer texts. Halliday and Hasan (1976) stated that anaphora serves the function of giving cohesion to a text, and Nash-Webber (1977) points out the demands it makes upon the reader/listener in evaluative, pragmatic, semantic and syntactic processing.

One of the earliest researchers to explore the children's comprehension of

pronominalization was C. Chomsky (1969). She found that in the acquisition of the pronoun-referent relations, children first hypothesize that pronouns follow antecedents (forward pronominalization). Backward pronominalization was troublesome to C. Chomsky's subjects (up to age 10). Van Metre (1978) and Berkovitz and Wigodsky (1979), working with theoretical constructs similar to C. Chomsky's, found conflicting results but confirmed the developmental aspects of pronominal comprehension.

While this cited research dealt with comprehension in an oral mode, other researchers such as Barnitz (1980), Bormuth et al. (1970), Lesgold (1974), and Richeck (1977) examined comprehension in written text. Barnitz discovered that while children acquired backward pronominalization by grade 6, most of the children in his study had mastered forward pronoun reference by the fourth grade. Although Lesgold's and Bormuth's et al. work produced contradictory results, it showed pronominalization to be difficult for fourth graders. Richeck found that the frequency of anaphora in school texts did not increase comprehensibility.

Another factor contributing to a reader's difficulty with the comprehension of anaphora is its context-reduced nature, a feature of language proficiency studied by Cummins and his colleagues. Cummins et al. (1982) view language proficiency as a continuum that includes context-embedded and context-reduced language. Context-embedded language reduces the need for explicit elaboration in the usage since the interpersonal involvement has a shared reality. Context-reduced language does not make such assumptions. In language forms that are context dependent the linguistic message must be precisely and explicitly elaborated to minimize any possible misinterpretation. The clues are semantic rather than contextual. These same features are important factors in the comprehension of anaphora.

The demanding nature of anaphora involves the synthesis of syntactic and semantic clues as well as a child's individual rate of development. The task of reading and comprehending viewed as context-reduced includes cognitive demands. From this perspective it would be a reasonable expectation that: (1) bilinguals would understand anaphoric third-person subject pronouns in the backward and forward position better than their monolingual peers, and (2) bilinguals would achieve this at an earlier age.

## Subjects

The initial subject pool for this study consisted of 300 students: 133 bilingual and 167 monolingual. They were drawn from two schools located in Queens, New York, and a town in Nassau County, New York. The students were all fourth graders, ages 9-10. The Queens school was in a district with a Hispanic population made up of Dominicans, Colombians, and Argentinians. The Spanish-speaking population in the Nassau County district was over 50% Puerto Rican with the remaining Hispanic children from various Central and South American countries.

The final sample consisted of four groups: (1) high proficient Spanish-English bilinguals; (2) partial proficient Spanish-English bilinguals; (3) high proficient English monolinguals; and (4) partial proficient English-monolinguals. These groups were chosen by a stratified random sampling technique using level of CALP as the major criterion (described in greater detail under Materials). Students in the

population who were left back, were older than 9-10 years, or were Spanish-dominant were deleted from the initial selection pool.

Fourth grade level was chosen because previous research has indicated that monolingual children of that grade encounter difficulty comprehending anaphoric pronouns (Barnitz 1982; C. Chomsky 1969; Richeck 1977). For fourth grade bilinguals it was not known whether anaphoric pronouns are equally difficult. Bormuth et al. (1970) have pointed out that the instruction of reading comprehension and its daily practice begin in earnest at this level in school; thus, a study at this grade level was thought to be relevant. Additionally, Cummins (1976) postulated that in the early grades in a bilingual program, little cognitive retardation related to school functioning would be observed. He posited that a child's interaction with his world at this age, and consequently his cognitive development, is less language dependent than in the later grades.

**Materials**

The vocabulary and reading comprehension subtests of the *Comprehensive Test of Basic Skills* (CTBS/S) were administered to all subjects and were used to select different levels of cognitive academic linguistic proficiency (CALP) as defined by Cummins (1980a,b, 1982). Based on the percentile scores obtained, the high and partial proficient levels were determined for both bilingual and monolingual groups – 67th or above percentile for the high proficient groups, and 34th – 50th percentile for the partial groups. Similar subtests of vocabulary and reading comprehension of the *Comprehensive Test of Basic Skills/Español (CTBS/Español)* were used to establish the Spanish scores which had to fall within the SAME percentile range as on the English CTBS/S. Subjects had to fall within the same range on both the Spanish and English tests in order to qualify for inclusion in the sample pool.

*The Measures of Anaphoric Pronouns* (MAP) Test was the instrument that tested the comprehension of the forward and backward, inter- and intra-sentential third-person subject pronouns. The previous anaphora studies used artificial instruments designed to test the specific research hypotheses. I chose to use actual school text because that was the material that children were expected to read and comprehend. No passages were taken from any texts used in the schools where the actual testing was carried out.

After reviewing many fourth grade level texts, 25 passages were initially selected. These were narrowed to 11 after validation for appropriateness by three reading experts as well as a feasibility study with a group of fourth graders. The feasibility study on the test items produced a reliability score of .916 on the KR21. Additionally, the test passages were further analyzed using the *Syntactic Complexity Formula* (Botel, Dawkins, and Granowsky 1973) to ensure that the passages were neither syntactically different from one another nor too complex. Passages that produced too low or too high a syntactic complexity score were screened out. The final passages were then arranged from lowest to highest score with the exception of one passage. Although it had the lowest syntactic complexity score, the children in the feasibility study recommended that it be placed last because it was the longest of all the passages, and surprisingly proved to be the most difficult for all the children tested. (Further discussion found in results in section).

The *MAP* Test contained a total of 101 test pronouns distributed naturally as follows: (1) 64 forward inter-sentential pronouns (FIE); (2) 12 forward intra-sentential (FIA); (3) 20 backward inter-sentential (BIE); and (4) 5 backward intra-sentential (BIA). The distribution of these pronouns was the result of using school texts rather than texts specifically designed to control each type of anaphora.

After the final testing the 80 completed tests were subjected again to a KR21 for internal reliability. The computed coefficient was .98.

**Test format**

The 11 passages (lettered A–K) were presented in a booklet form, each passage on a separate page with a corresponding answer sheet. In every passage each pronoun (he, she, it, they) had a number over it. The numbers were sequential within the passage. For example:

1. 2.
A. Tommy drank his juice after *he* got up. Then *he* brushed his teeth.

The children were asked to write out the referent on the answer sheet. For the sentence above the children will have written in the answer sheet booklet the following answers in the following manner:

A. 1. Tommy
2. Tommy

The children were instructed to write out the word or group of words that they thought was the referent for the pronoun. Several sample questions were given as practice in order to ensure comprehension of the test style.

**Scoring**

A correct response was the word or any part of a group of words which comprised the referent for the pronouns "he", "she", and "it". In the case of the pronoun "they," however, a response was scored correct only when it included all the antecedents. A correct response counted as 0; an omission, half a response, or incorrect answer counted as 1. Since only wrong answers were tallied, the raw scores are the totals of wrong answers.

**Findings**

This study explored two independent variables and four dependent variables. The two-way Analysis of Variance was utilized to compare the mean scores within each dependent variable and to determine whether there was interaction between level of proficiency and inclusion in the bilingual and monolingual group. The minimum level of significance was set at the .05 level.

Of the 12 null hypotheses tested, 8 were retained. These hypotheses tested differences between bilinguals and monolinguals on the four dependent variables as well as interaction between language proficiency and lingualism. However, the four null hypotheses that explored differences between proficiency levels were

rejected because they were found to be highly significant at the .001 level on three of the four dependent variables (FIE, BIE, BIA); the calculated F value for the remaining variable (FIA) was significant at the .05 level.

Supplementary analysis of the raw data revealed that the pronoun "it" was the most difficult for all four groups regardless of proficiency level. This pronoun appeared in the FIE position 14 times while in the FIA position only 6 times. The results of the answers to the "it" category are shown in Table 1.

**TABLE 1**
**Percentage of Incorrect Responses for the Pronoun "It" in the Forward Inter-sentential Category**

| | A6* | D4 | K10 | K12 | B7 | I7 | B9 | D11 | I4 |
|---|---|---|---|---|---|---|---|---|---|
| HBa | .80 | .70 | .80 | .85 | | | | | |
| PBb | .75 | .85 | 1.00 | 1.00 | .70 | .55 | | | |
| HMc | .80 | .55 | .55 | .80 | | | | | |
| PMd | .70 | .85 | .95 | 1.00 | .80 | .75 | .75 | .50 | .60 |

*Letters refer to specific stories that were lettered A–K, numbers are answers within stories.
a–High Bilingual, b-Partial Bilingual, c–High Monolingual, d–Partial Bilingual

"It" also appeared three times in the BIA category and not at all in the BIE position. The results indicated that in both Partial groups 70% of all children were incorrect and in one answer 100% of all the children in the four groups scored incorrect answers.

Raw data analysis further showed that the pronoun "they" appeared six times in the FIE position and only once in the BIE position. All four groups had an average 76% answering incorrectly on at least one of the questions. In the only BIE category tested, an average 85% of the children's answers were incorrect.

A pronounced difficulty with the pronoun "they" became apparent in analyzing the responses to the story with the lowest syntactic complexity score. Although the pronoun "they" appears in the first sentence, it does not resolve until 24 sentences later and it occurs in two stages. Half of the specific referent, "Stevie", is identified within the first three sentences; "Stevie's mother", the other half of "they", becomes "she" and is repeated seven times prior to her actual identification. Over 50% of the children in three of the four groups gave incorrect answers. The partial monolinguals had the greatest difficulty. The high monolingual group, however, had 45% answering incorrectly. Seven of the answers resulted in a mean score of 67% incorrect. The initial reference to "they" had an 85% error factor.

The raw data were then collapsed into groups and categories (Table 2). It becomes evident from Table 2 that the high monolingual group had the lowest percentage of incorrect answers on every category and fractionally outscored their matched bilingual counterparts. In both inter-sentential categories the order of scoring from lowest to highest was high monolingual, high bilingual, partial bilingual, and partial monolingual.

**TABLE 2**
**Total Raw Scores Incorrect Responses and Percentage for Each Anaphora Category**

| | FIE (a) | | FIA (b) | | BIE (c) | | BIA (d) | |
|---|---|---|---|---|---|---|---|---|
| | TI* | P* | TI | P | TI | P | TI | P |
| HB (e) | 183 | .14 | 51 | .21 | 128 | .32 | 40 | .49 |
| HM (f) | 146 | .11 | 42 | .18 | 106 | .27 | 39 | .39 |
| PB (g) | 326 | .25 | 79 | .33 | 202 | .50 | 51 | .51 |
| PM (h) | 350 | .27 | 77 | .32 | 231 | .58 | 46 | .46 |

(a) FIE: possible total incorrect 1280
(b) FIA: possible total incorrect 140
(c) BIE: possible total incorrect 400
(d) BIA: possible total incorrect 100
(e) High Bilingual, (f) High Monolingual, (g) Partial Bilingual, (h) Partial Monolingual
*TI = total incorrect
P = percentages

This table also indicates that the BIA category, which had a frequency of only five appearances, was nevertheless a more difficult concept than FIE which appeared 64 times. This was true for both bilinguals and monolinguals.

## Conclusions

The results of this study do not lend strong support to the premise that bilingualism is a factor in comprehending the types of anaphora tested in this investigation. Reading levels (CALP) appear to be the strongest element. The average percentile reading score for the high monolinguals was 88.35 and 79.15 for the high bilinguals. The high monolinguals had the smallest number of incorrect responses for all four anaphora categories with an average of 24% incorrect to the bilinguals 27%. The 9 percentile points that separated the two groups did not produce a comparable score discrepency on the *MAP* test since both groups were already high proficient CALP groups and were significantly better readers than their partial proficient fourth-grade peers whose percentile reading scores were 44.75 for the bilinguals and 41.25 for the monolinguals, respectively. However, on the backward inter-sentential and intra-sentential categories of anaphora, all readers, regardless of level, scored equally poorly. The results are not definitive, but it can be concluded reasonably that with reference to the BIE and BIA categories developmental factors exercise a strong influence in anaphora comprehension. Similar findings were also important in the work of Barnitz (1980), C. Chomsky (1969), and Cole (1974).

## Implications

This research found that bilingual children have the same difficulty with anaphora as their monolingual counterparts. In the comprehension of the pronouns tested, partial language proficiency was not a hindrance. In fact, bilingual chil-

dren had a slight advantage over their matched partial monolingual counterparts. A likely intepretation of these data is that a high CALP level (possessed by both monolingual and bilingual children) was one important factor in the corresponding scores on the *MAP* test.

An implication this investigation points to is the role of antecedent-referent construction. One of the test passages asks the reader to store the information necessary for resolution for 24 consecutive sentences. In reading materials with this particular configuration, children will certainly recognize the grammatical construction of the written passages, but the semantic comprehension or experiential background they need for comprehending this antecedent-referent relationship may be lacking. The children may know or understand the rules of grammar, but they do not yet know the interpretative rules required to understand anaphoric reference. This particular feature highlights the weakness in readability and syntactic complexity formulas. The separation of noun and pronoun is not measurable by formulas. This makes the prediction of comprehensibility of reading materials with this type of syntactic construction difficult, if not impossible, to ascertain. This is evidenced by the fact that of the 101 questions tested only one was answered correctly by all 80 children.

The importance of developmental factors (Barnitz 1980, C. Chomsky 1969) and reading levels (Van Metre 1978) in comprehension of anaphora were also found in this study. Anaphora touches many fields, from psychology (language acquisition and memory) to linguistics (grammatical constraints). It would appear that because of these factors anaphora comprehension is not accelerated in bilingual children. Though grammatically easy to recognize semantically, anaphora requires developmental readiness for the children to understand what is being anaphorized. More research is certainly recommended.

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